

What is claimed is:

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Claim 1 1. A LM609 grafted antibody exhibiting selective binding affinity to $\alpha_{v}\beta_{3}$, comprising at least one LM609 grafted heavy chain polypeptide comprising substantially the same variable region amino acid sequence as that shown in Figure 1A (SEQ ID NO:2) and at least one LM609 grafted light chain polypeptide comprising substantially the same variable region amino acid sequence as that shown in Figure 1B (SEQ ID NO:4) or a functional fragment thereof.

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2. The LM609 ~~grafted~~ ^{CDR-grafted} antibody of claim 1, wherein said functional fragment is selected from the group consisting of Fv, Fab, F(ab)₂, and scFV.

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3. A nucleic acid encoding a LM609 ~~grafted~~ ^{CDR-grafted} heavy chain polypeptide comprising substantially the same LM609 grafted heavy chain variable region nucleotide sequences as that shown in Figure 1A (SEQ ID NO:1) or a fragment thereof.

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4. The nucleic acid of claim 3, wherein said fragment further comprises a nucleic acid encoding substantially the same nucleotide sequence as the variable region of said LM609 ~~grafted~~ ^{CDR-grafted} heavy chain polypeptide (SEQ ID NO:1).

5. The nucleic acid of claim 3, wherein said fragment further comprises a nucleic acid encoding substantially the same nucleotide sequence as a CDR of said LM609 ^{CDR-grafted} _{grafted} heavy chain polypeptide.

5 6. A nucleic acid encoding a LM609 ^{CDR-grafted} _{grafted} light chain polypeptide comprising substantially the same LM609 grafted light chain variable region nucleotide sequences as that shown in Figure 1B (SEQ ID NO:3) or a fragment thereof.

10 *Sub D2* 7. The nucleic acid of claim 6, wherein said fragment further comprises a nucleic acid encoding substantially the same nucleotide sequence as the variable region of said LM609 ^{CDR-grafted} _{grafted} light chain polypeptide (SEQ ID NO:3).

15 8. The nucleic acid of claim 6, wherein said fragment further comprises a nucleic acid encoding substantially the same nucleotide sequence as a CDR of said LM609 ^{CDR-grafted} _{grafted} light chain polypeptide.

20 9. A nucleic acid encoding a LM609 ^{CDR-grafted} _{grafted} antibody heavy chain polypeptide comprising a nucleotide sequence encoding substantially the same LM609 ^{CDR-grafted} _{grafted} heavy chain variable region amino acid sequence as that shown in Figure 1A (SEQ ID NO:2) or fragment thereof.

10. The nucleic acid of claim 9, wherein said fragment further comprises a nucleic acid encoding substantially the same heavy chain variable region amino acid sequence of said LM609 ^{CDR-grafted} _{grafted} heavy chain amino acid sequence (SEQ ID NO:2).

11. The nucleic acid of claim 9, wherein said fragment further comprises a nucleic acid encoding substantially the same heavy chain CDR amino acid sequence of said LM609 ^{CDR-grafted} _{grafted} heavy chain amino acid sequence.

10 sequence.

12. A nucleic acid encoding a LM609 ^{CDR-grafted} _{grafted} antibody light chain polypeptide comprising a nucleotide sequence encoding substantially the same LM609 ^{CDR-grafted} _{grafted} light chain variable region amino acid sequence as that shown in Figure 1B (SEQ ID NO:4) or fragment thereof.

13. The nucleic acid of claim 12, wherein said fragment further comprises a nucleic acid encoding substantially the same light chain variable region amino acid sequence of said LM609 ^{CDR-grafted} _{grafted} light chain amino acid sequence (SEQ ID NO:4).

14. The nucleic acid of claim 12, wherein said fragment further comprises a nucleic acid encoding substantially the same light chain CDR amino acid sequence of said LM609 ^{CDR-grafted} _{grafted} light chain amino acid sequence.

25 sequence.

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15. A LM609 *CDR-grafted* grafted heavy chain polypeptide comprising substantially the same variable region amino acid sequence as that shown in Figure 1A (SEQ ID NO:2) or functional fragment thereof.

5 16. The LM609 *CDR-grafted* grafted heavy chain polypeptide of claim 15, wherein said functional fragment comprises a variable chain polypeptide or a CDR polypeptide.

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10 17. A LM609 *CDR-grafted* grafted light chain polypeptide comprising substantially the same variable region amino acid sequence as that shown in Figure 7 (SEQ ID NO:4) or a functional fragment thereof.

15 18. The LM609 *CDR-grafted* grafted light chain polypeptide of claim 17, wherein said functional fragment comprises a variable chain polypeptide or a CDR polypeptide.

19. A method of inhibiting a function of $\alpha_v\beta_3$, comprising contacting $\alpha_v\beta_3$ with a LM609 grafted antibody or a functional fragment thereof under conditions which allow binding of LM609 grafted antibodies to $\alpha_v\beta_3$.

20. The method of claim 19, wherein said functional fragment is selected from the group consisting of Fv, Fab, $F(ab)_2$ and scFV.

21. The method of claim 19, wherein said function of $\alpha_v\beta_3$ is binding of $\alpha_v\beta_3$ to a ligand.

22. The method of claim 19, wherein said function of $\alpha_v\beta_3$ is integrin mediated signal transduction.

23. A method of treating an $\alpha_v\beta_3$ -mediated disease comprising administering an effective amount of a 5 LM609 grafted antibody or a functional fragment thereof under conditions which allow binding to $\alpha_v\beta_3$.

24. The method of claim 23, wherein said functional fragment is selected from the group consisting of Fv, Fab, $F(ab)_2$ and scFV.

10 25. The method of claim 23, wherein said $\alpha_v\beta_3$ -mediated disease is angiogenesis or restenosis.

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